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## COMMUNICATIONS

### A CONTRIBUTION TO THE STUDY OF ANGIOSCOTOMETRY

BY

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THE very interesting phenomena disclosed by this branch of visual field study are so unusual as to need careful consideration at every step, and particular care must be taken not to attempt to draw conclusions from the findings thus far uncovered.

We cannot expect to find help through a review of the literature, because careful search shows that no more than stump-like processes have been previously demonstrated (see Chart I, Figs. 1, 2, and 3). To be sure, numerous papers have shown pathological charts from which a defect of vascular origin could be pointed out. But in such cases the relation could be arrived at mainly through inference from other forms of study.

The plan thus far adopted has been to present maps showing typical characteristics of the angioscotoma. The physiological experiments have been repeated many times, and the particular phenomena checked by a number of observers before the results have been accepted. Of course, this policy has been impossible in most of the pathological cases.

The word "Angioscotometry" was chosen only as a temporary means of denominating this work, as it was realized at the very beginning that it was probably not technically accurate and that, indeed, the various phenomena described might not be manifestations of vessel-shadow at all. It seems best, however,

to continue its use with the understanding that it is applied in a broad sense to mean that the plotting is *associated* with the retinal vessel tree rather than *caused* by it. The words "vessel shadow" and "vessel scotoma" are used in this same sense in these reports. In concrete form we may state the experimental matter in hand thus:

FIRST.—The *discovery of the angioscotoma* (see Chart II).* The development of this technique may properly be called "perimetry with minute objects." In some instances the little spheres may be smaller than 1/8 mm. in diameter.

SECOND.—The *discovery of certain types* of characteristic distribution, particularly about the macular region and adjacent to the blind spot (see also Chart II).

THIRD.—The *discovery of certain physiological changes*, as—

I. Widening of the angioscotoma by:
   1. Holding the head lower than the trunk (see Chart III, Fig. 1).
   2. Holding the breath (see Chart III, Fig. 2).
   3. Pressure on the eye which is being plotted (see Chart III, Fig. 3).
   4. Pressure on the *opposite* eye (see Chart III, Fig. 4, *a* and *b*).

II. The *discovery that the scotoma seeks* to relocate itself if the head be rotated about the visual line of the eye examined (torsion).

To these three studies of the physiological series we may now add others:

FOURTH.—*This study has demonstrated* that the scotoma may be traced in every direction to at least 35 degrees from the nerve head. Such a study is possible only by making removable the dividing partition of the stereocampimeter. This means makes accessible much more of the nasal field. A characteristic arrangement of the scotoma is then noted in that region. Excentric fixation is also used to bring the more peripheral areas within the limits of the slate (see Chart IV).

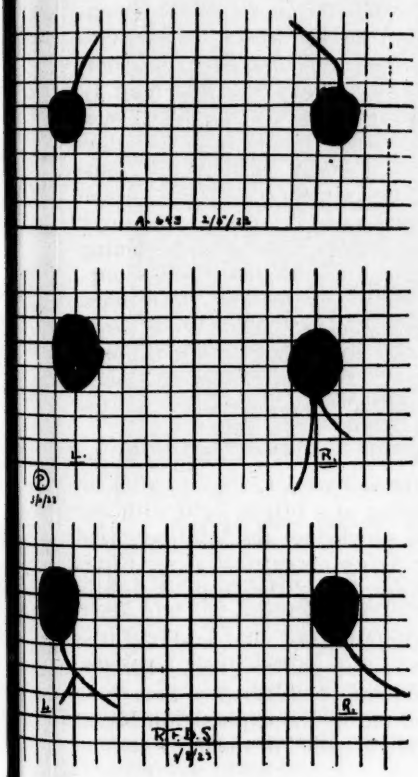
FIFTH.—In the non-pathological case of L.S., *when frightened*, the vessel scotoma showed marked widening, as compared with the same scotoma taken a few minutes later when the patient was at ease. The patient was badly frightened and pallid because she was afraid the stereocampimeter would hurt her. She had been told that the test was very painful and she had recently undergone

*Preliminary reports, with a detailed description of the technique appeared in the *Amer. Jl. of Ophthal.*[4] (An abstract of this paper will be found on p. 407 of this number.—ED.)

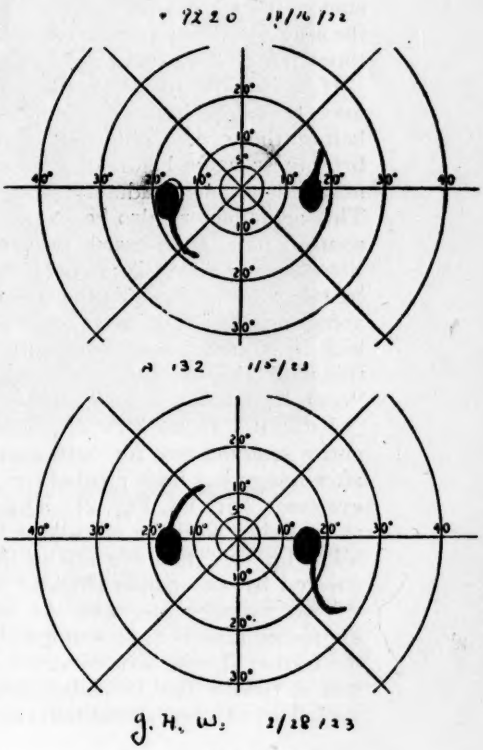
It seems better to allow the small sphere a longer protruding stem than in the original objects, so that the paper handle is more remote and is less apt to attract attention.

From Helmholtz.
CHART I. FIG. 1.

From Igersheimer.
CHART I. FIG. 2.




From S. B. Marlow.
CHART I. FIG. 3.




From S. B. Marlow.
CHART I. FIG. 4.

a severe and painful operation. Perhaps we may term this phenomenon "widening by fright," or even, "psychological widening" (see Chart V, Fig. 1).*

SIXTH.—*It was discovered that* in 100 consecutive cases at least one small angioscotoma extended in the horizontal meridian from the blind spot towards the point of fixation. Ordinarily, this can be traced less than six degrees from the border of the blind spot (see Chart V, Figs. 2 and 3).

SEVENTH.—*It was discovered that* this scotoma could be traced all the way to the point of fixation; when an after-image had been created by gazing fixedly at a bright light for a few seconds. (The subject turns, from fixing the light, immediately to the campimeter and the outline of the after-image can be mapped by the same technique as is used for plotting the vessel scotoma.) The extension of the short vessel scotoma is not discoverable all the way to the after-image for an interval of 10-15 seconds, and persists a short time after that central scotoma fades (see Chart V, Figs. 2 and 3).

If desired the after-image, when projected as a *relative scotoma*, may be exaggerated, or even made absolute, by placing a red glass before the eye. It is well to place a green glass of the same brightness value before the fellow, or fixing eye, so that the red may not become gradually submerged and lose its colour value.† This arrangement also keeps one or the other eye from becoming continuously suppressed because of the difference in acuity. Stereoscopic vision is also enhanced by this method. Care must be taken to fix through the green glass a very white chalk circle about the fixation point, in order to discourage suppression through lack of stimulation of the fixing eye. The writer has not found this method previously described and therefore denominates it the "complementary colour" method.

EIGHTH.—*It has been discovered* that there is a widening of the entire scotoma tree for *both eyes* (see Chart VI, Fig. 1) after an after-image has been created by gazing at a bright light with *one eye* (see Chart VI, Fig. 2). This is so whether the light be gazed at by fixing with the macula or by *fixing excentrically* (see Chart VI, Fig. 3). The eye not in use for fixing the light is lightly covered by an opaque shield.

Two avenues are open for exploration in the study of the angioscotoma—the physiological and the pathological. Ideally, the former should be fully developed and established so that some sort of theory may be elaborated to aid in the explanation of the pathological. Such conditions are not afforded in the daily routine

*Once studied and not checked by other observers.

†*This means of study* by the "complementary colour method" is worth careful thought, as many very interesting problems are introduced. See Parsons[5] and Helmholtz[6] for other observations.

in the practice of ophthalmology. Moreover, certain pathological cases present themselves from time to time, which offer unusual and rare opportunities for studying the relation of the angioscotoma to disease conditions. It is, therefore, more practical to develop the two branches at the same time. By following this method of study

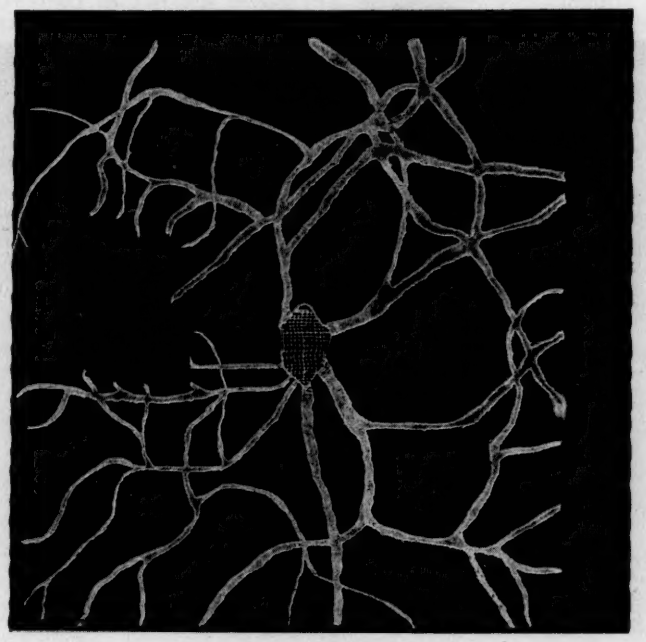


CHART II. FIG. 1.

A typical vessel scotoma 1 mm. white sphere used. Mapping time 2 hours. Simple hyperopia 1D.

it has been possible to show certain relations between angioscotomata and the following pathological conditions.

FIRST.—*There was discovered a relation of the blood-vessel* shadow to an enlarged blind spot in a case of pulsating exophthalmos. In this instance, the widened angioscotoma and enlarged blind spot became smaller when pressure was made over the carotid artery on the same side, though there was no apparent change in the fundus picture.*

* From a review of the literature this would seem to be the first case reported in which such a change in the blind spot had been demonstrated. See reference No. 1 in Bibliography. (Case of J.S.)

SECOND.—*A relation has been pointed out* between the angioscotoma and enlarged blind spot in a case of toxic neuro-retinitis. (Case of E.S.)

THIRD.—*A relation of the angioscotoma* has been discovered in cases definitely recognized as being vascular in character. Of these there was a tuberculous periphlebitis; a pigmentary degenera-

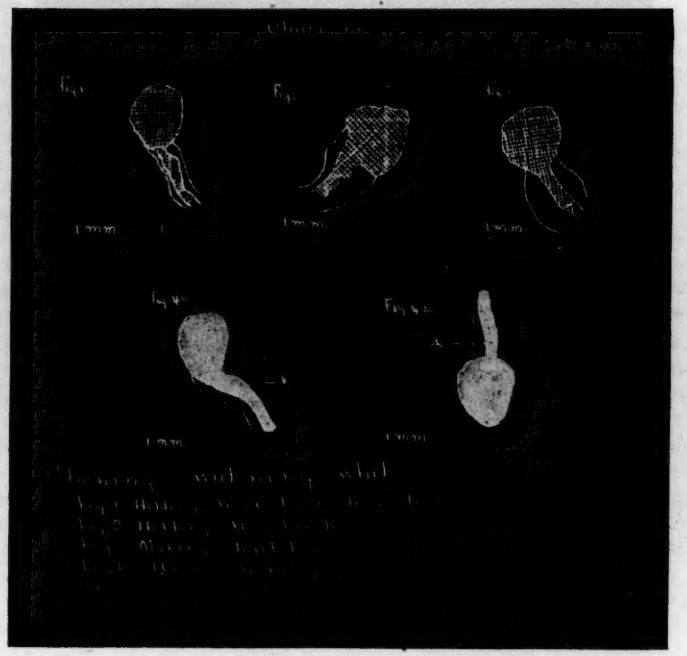


CHART III.

tion of the retina; a choroiditis, macular degeneration in a case of arterio-sclerosis and advanced chronic interstitial nephritis.

FOURTH.—*A relation of the vessel shadow* has also been indicated in charts of patients suffering from chronic glaucoma.

FIFTH.—*A relation has also been found* in certain toxic cases, as alcoholic amblyopia and retrobulbar neuritis. (These charts are also presented in a previous paper.)*

There is strong temptation to try to draw deductions from each of these cases but as another is added, an apparent complication

* See these cases in author's paper, reference No. 4 Bibliography.

arises which emphasizes the danger of premature speculation in the presence of inadequate material.

The following cases show additional relations:

SIXTH.—H.M. This patient, a coloured woman, stated as aged 46 years, had been under observation for eight years. Three years previous to the present examination, a haemorrhagic glaucoma had developed in the left eye which necessitated enucleation. The condition leading up to this was a very rapidly advancing arterio-sclerosis of the generalized type in which numerous vessels had become apparently replaced by fibrous tissue. At the onset of the

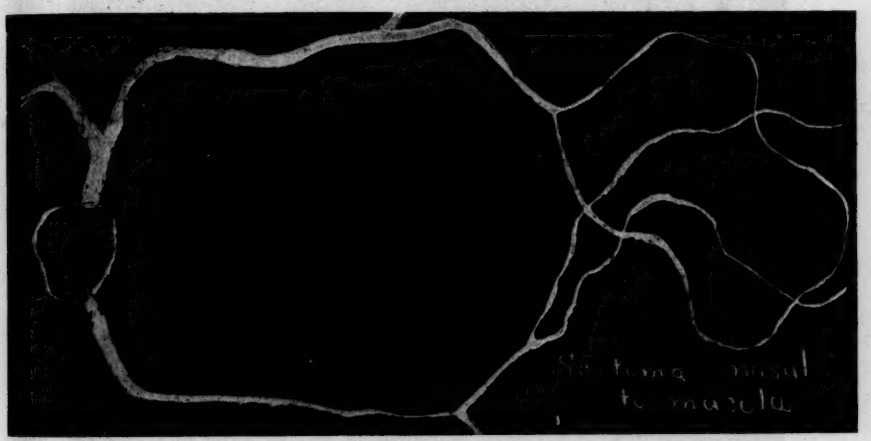


CHART IV. FIG. 1.

glaucoma all stages of sclerosis were present in the various vessels. The vessels here studied correspond as nearly as can be remembered to a group of nasal ascending ones which showed this same picture at the time of enucleation. The ophthalmoscope now shows a similar broadly blurred arterio-venous crossing, with pinched vein and wide central and peripheral light streaks on the artery. As will be seen from the chart there is no difference from the normal in the appearance of the angioscotoma either at the point of crossing, or elsewhere. Pressure on the same eye showed the usual widening effect and seemed to respond to the change in the same manner in every way as a healthy eye. The opposite eye being enucleated, heavy pressure was made directly on the artificial eye, and also through the closed lids, so as to cause deep orbital compression. There was, however, no widening of the scotoma under these conditions. Though very carefully and

repeatedly studied, the cause of this almost malignant sclerosis has not been discovered. The visual acuity is still 6/6 and there is no other pathological evidence in the eye (see Chart VII, Fig. 1).

SEVENTH.—L.K. This American woman, aged 54 years, showed a marked generalized arterio-sclerosis, apparently of a primary type. The vessels mapped (right eye) appeared ophthalmoscopically as white fibrous bands without evidence of a blood stream at any point. O.D.V.=3/30. It was noted that pressure on the same eye caused the usual prompt widening effect. Pressure on the

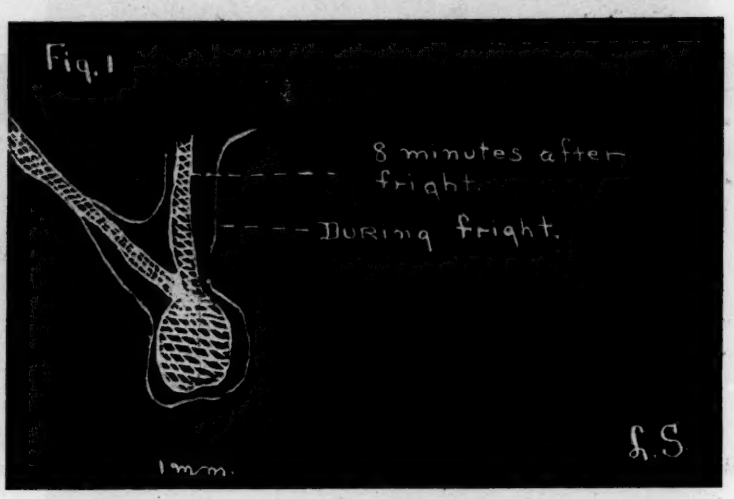



CHART V. FIG. 1.

opposite eye, however, did not produce this usual effect (see Chart VII, Fig. 2).

EIGHTH.—C. McF. An American man, aged 36 years, was under observation from August to October because of decrease of vision in the left eye. Though previously studied by three different physicians, no ophthalmoscopic evidence could be found. The *finally* visible detachment of the retina had become non-progressive by November. The relation of the vessel scotoma to the detachment was well shown months before the ophthalmoscope could identify the lesion. Vision dropped during the period of observation from 6/12 to 3/30+1 (see Chart VIII, Figs. 1-4).

NINTH.—J.L.M., aged 60 years. A physician complained of decreased vision in each eye which turned out to be a uniocular diplopia, affecting each eye separately. The left eye got doubling

of a horizontal string in all positions of the head with a separation of apparently two inches at ten feet. The right eye got separation

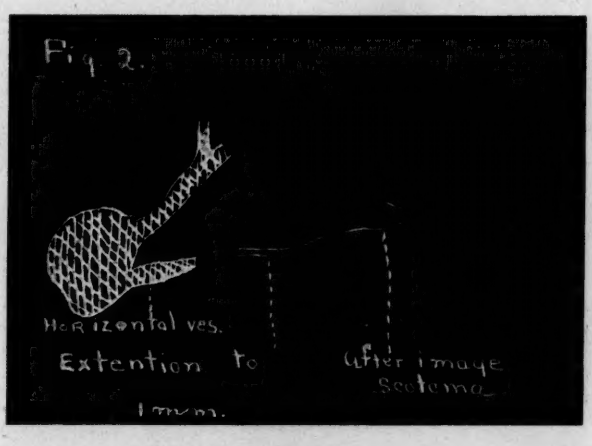



CHART V. FIG. 2.

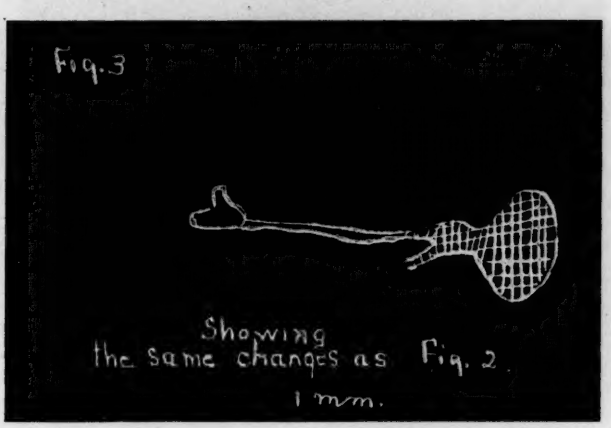



CHART V. FIG. 3.

of about one-half inch. (A pin-hole aperture did not relieve the diplopia.) Very small opacities of the lens could not be ruled out absolutely, as the cause, but arterio-sclerosis with nutritional disturbances at the macula were called the aetiological factors. Central

acuity with correction of a +3.0S. was constantly 6/4 in each eye. Both eyes showed the vessel scotoma running from the blind spot to a central scotoma. Mapping was accomplished by the "complementary colour method" (see Chart IX, Fig. 1).

TENTH.—*An additional relation which has to do with the problem of amblyopia ex anopsia has been discovered.* Out of twenty consecutive cases in which all other causes for the decreased vision were carefully ruled out, a central scotoma was outlined and at least one angioscotoma connected it to the blind spot. In some instances a number of these small vessel shadows were outlined radiating

CHART VI. FIG. 1.

from the central defect (Chart IX, Fig. 2). The same widening effects could be produced on these angioscotomata as could be with other vessel shadows (Chart IX, Fig. 3), *i.e.*, to light, pressure, holding breath, etc. All of these twenty cases in which the scotomata were mapped, were not suitable for the more elaborate studies of widening, on account of the "wandering moments" which these eyes showed after protracted fixation. The "complementary colour method" was used.

In looking about for possible related factors and phenomena which may at some time be of assistance many points are of the utmost interest. Beside the possible influence of the perivascular lymph space and all those near and remote factors modifying intraocular pressure, certain circulatory responses, the influence of the sympathetic, etc., we must not forget the avascular zone of the retina following the arteries and veins. This region contains no capillaries, as was pointed out particularly by Parsons.[8]

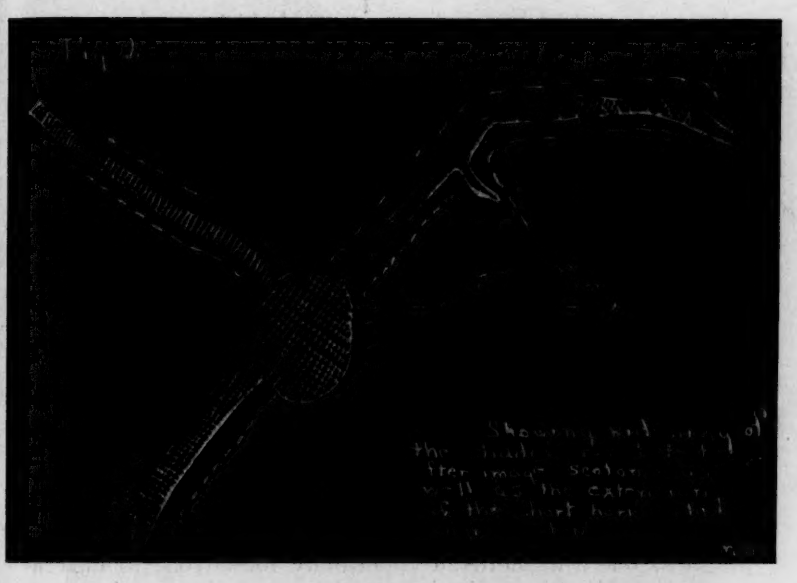


CHART VI. FIG. 2.

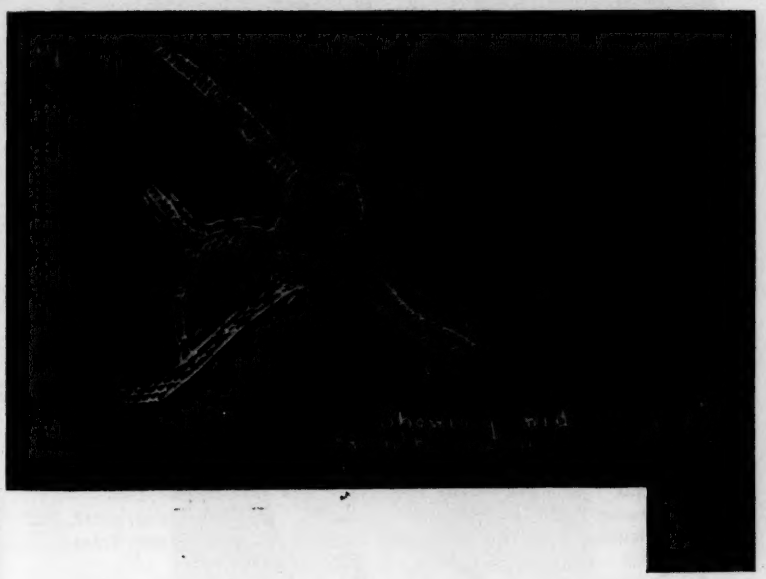


CHART VI. FIG. 3.

I may quote this same author on a point which may have some relation to the horizontally placed scotoma between the macula and the nerve head: "There are also two fine macular arteries which pass horizontally outward from the disc, usually arising from the central artery before it has reached the surface."[8]

The recent contributions coming from Cajal's[7] workers, and corroborated by Penfield,[7] on the neuroglia cells of the brain, and particularly those cells—the astrocytes—capable of motility and which in part, at least, seem to contribute to the formation of the perivascular lymph space must not be neglected in amassing possible factors likely to contribute to an explanation of the herein described phenomena. To be sure, there is still much to be learned about their relation to the retina, but our knowledge is expanding rapidly.

*Remarks.*—It is proposed to continue this policy in future communications of stating the features so far brought to light, both pathological and physiological, including any additions from the literature, supplying any points which may some day lend aid in evolving a theory and keeping up bibliographical references. In this way each communication will not only summarize the progress, but will afford an opportunity for anyone to offer a possible explanation of these very interesting and novel phenomena.

If the angioscotoma studies never develop any practical diagnostic points it is obvious that indirectly they will lead to more systematic and painstaking methods of searching for defects in the central and paracentral regions and in this way may already be said to have established their practical value.

NOTE.—Dr. Ralph I. Lloyd has suggested that it would be well to call attention to the difference between the "complementary Colour method," as described by Schloesser (*Vossiusche Abhandl.*, Bd. III, Heft 8, 1901) and the method detailed above.

Space does not permit of a comparison of these two procedures. Reference to Schloesser's work will, however, make it evident that the principles involved are quite different.

## BIBLIOGRAPHY

1. **Helmholtz.**—*Physiological Optics*, Vol. II, p. 43. (Amer. Trans.)
2. **Igersheimer.**—*Arch. f. Ophthal.*, Vol. XCVI, p. 1.
3. **Marlow.**—*Jl. Med. Soc.*, State of New York, Vol. III, No. 9, September, 1923.
4. **Evans, J. N.**—*Amer. Jl. of Ophthal.*, Vol. IX, No. 7, July, 1926.
5. **Parsons, J. H.**—An Introduction to the Study of Colour Vision, p. 113, 1915.
6. **Helmholtz.**—*Physiological Optics*, Vol. III, p. 5, 16. (Amer. Trans.)
7. **Baily.**—Textbook of Histology, 7th edition, p. 213, etc.
8. **Parsons, J. H.**—The Pathology of the Eye, Vol. IV, p. 953, etc.

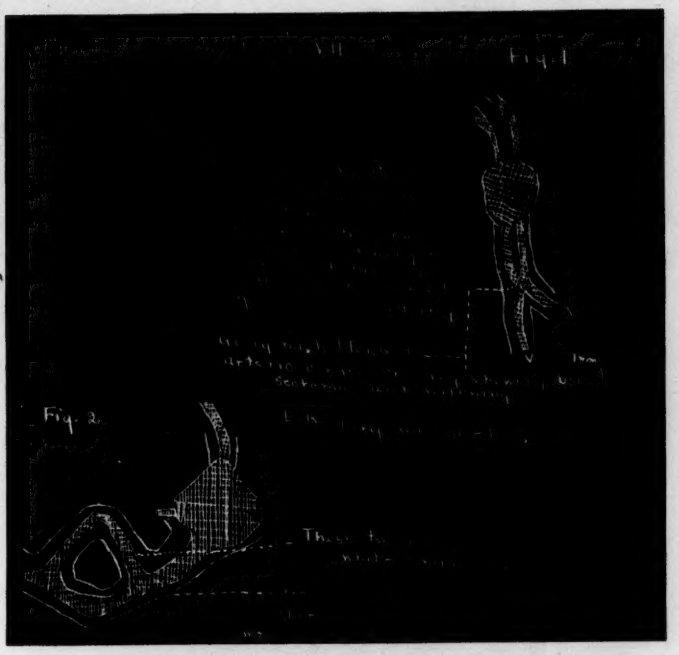



CHART VII.

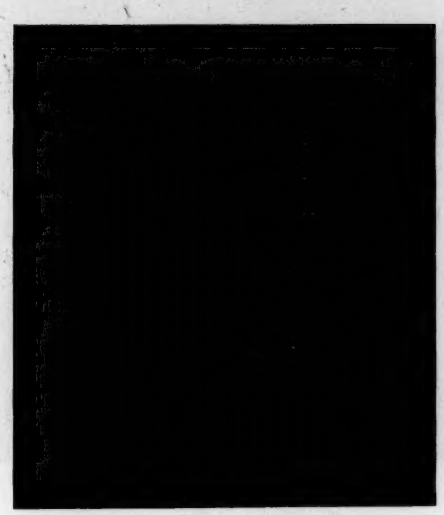


CHART VIII. FIG. 1.

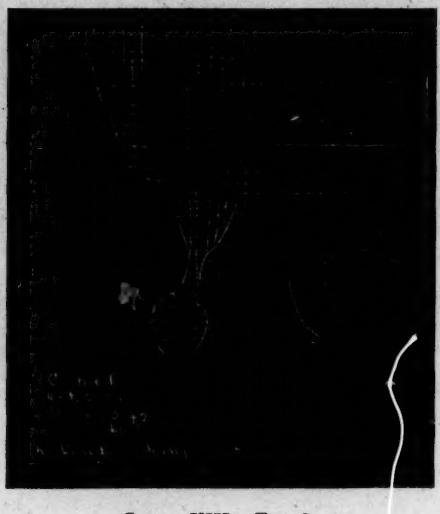


CHART VIII. FIG. 2.

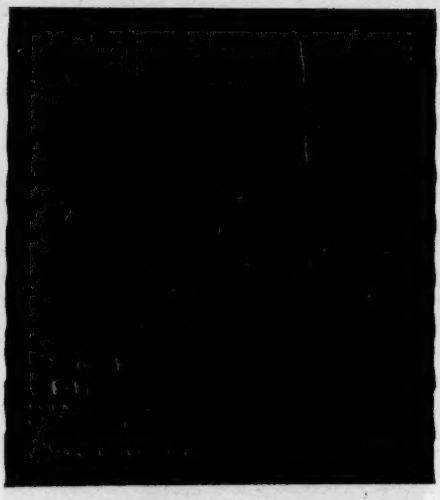


CHART VIII. FIG. 3.

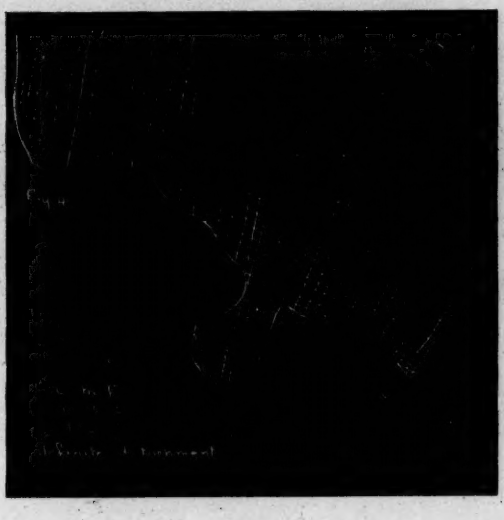


CHART VIII. FIG. 4.

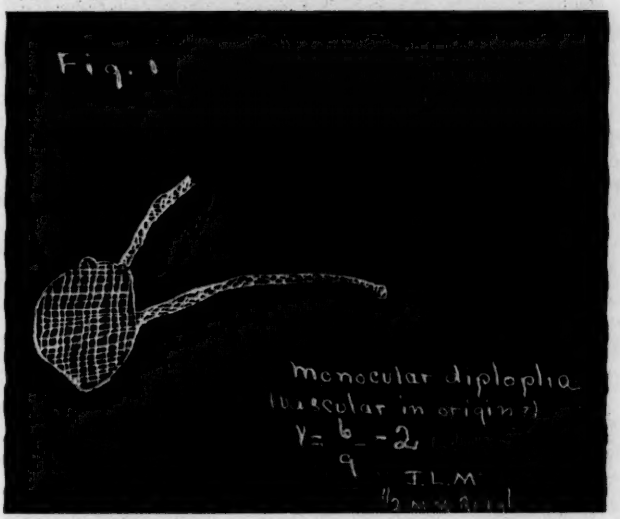



CHART IX. FIG. 1.

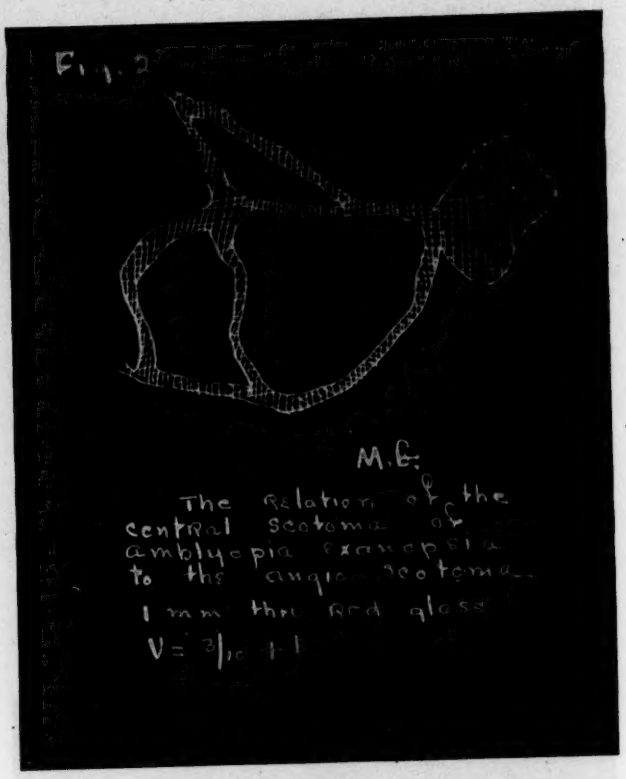



CHART IX. FIG. 2.

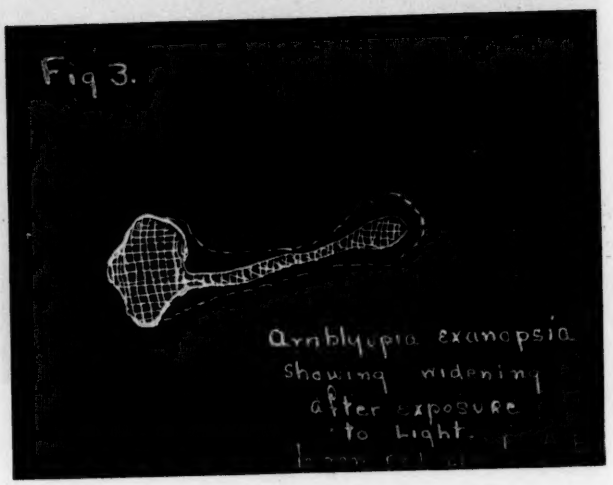



CHART IX., FIG. 3.

# SENILE BLEPHAROSPASM

BY

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AMONGST the troublesome chronic diseases, like nystagmus and conical cornea, which are not generally satisfactorily benefited by treatment, are some cases of idiopathic persistent senile blepharospasm. This condition is quite different from the functional type, which can be easily diagnosed from the history, signs, and symptoms, and so can be treated; but the senile variety mostly shows itself as a clonic type of spasm causing frequent winking movements of the lids and inability to keep the eye fully open during the spasms, which may either affect the orbicularis palpebrarum only, or also the zygomatici, or may be a part of general facial spasm (*tic convulsif*). It is in these localized forms in which, if the underlying cause be made out as is possible in the symptomatic variety, the spasms would readily respond to treatment, but for senile blepharospasm no one cause is generally to be found.

Such cases are a source of difficulty to the ophthalmic surgeon and make him painfully conscious of his inability to cure the patient. However the following case in which some success was achieved and a cure almost occurred seems interesting and worthy of note:

D.B., a man, aged 56 years, had a cataract extraction done in his left eye five years previously. He came to me with the complaint that his vision after the operation was fairly good, but gradually dimmed and that near work could not be done, on account of which he seemed to be in great mental anxiety, and was suffering from clonic blepharospasm of this left eye, which he said came on some months after the extraction. Examination revealed that he had only monocular vision, as his right eye was blind, and that he wore +13D. sph. before his left eye, with which he saw 6/60, and used to turn his head very slightly sideways to see clearly. Any other correction did not materially improve him for distant or for near sight.

Remnants of the capsular membrane were seen lying more in the central than in the peripheral part of the pupil. Another point that attracted attention was the condition of the skin of the lower lid and of the infra-orbital region, which was very lax and baggy. The patient stated that he had a feeling of heaviness in the lids of his left eye, and was conscious of the winking spasms whenever they occurred, as at that time he was unable to keep his eye even

half open, and so he shunned society. I decided to improve his vision by a needling operation; I made a good central hole in the tough capsule, and the man was able to read J.1 with proper correction, and his distant vision also considerably improved, and became more distinct than before. His mental anxiety being quite relieved as now he was able to do his usual clerical work, the spasms were also fortunately found to be considerably reduced in their intensity and frequency, and according to the patient reduced by 50 per cent.; this is probably due to the fact that the opaque membranes of the capsule lying in the centre of the pupil obstructed the entrance of rays of light and refracted them irregularly, and thus may have reflexly caused the spasms. This is likely to be the case, for if only one of the two eyes is working, and if in this there is some sort of obstruction to clear vision, reflexes of different kinds may be set up by efforts of the patient to see clearly. He does not now turn his head sideways to see distant objects.

To endeavour to help the patient in getting rid of the spasms altogether electrical treatment was tried for some time, but without benefit. As there was much redundant loose skin in the infra-orbital region I applied horizontally strips of adhesive plaster, with the idea of keeping the loose skin tightly stretched over the infra-orbital region; this seemed to be liked by the patient, as he said the twitching movements were less frequent and feebler than before. Every few days as the strips got dirty they were changed and so he kept on for some months during which he was also treated medicinally.

In the endeavour to attain a permanently satisfactory result I removed an oval piece of skin one inch broad and one and a half inches long on the outer side of the malar prominence and stitched up the edges; the skin then remained definitely stretched and the bagginess disappeared. The patient said he gradually felt better and almost cured of the troublesome spasms. Hence in this case it appears that the causes of blepharospasm were:

1. Extreme mental anxiety on account of not being able to do his clerical work, and the fear of losing his livelihood, on account of which he felt very nervous and passed sleepless nights.

2. Presence of dense capsular membrane in the central part of the pupil.

3. Loose baggy folds of skin of the lower eyelid.

# RECURRENT ATTACKS OF PHLYCTENULAR CONJUNCTIVITIS SYNCHRONIZING WITH MENSTRUATION

BY

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AS no mention of this phenomenon has been recorded in the literature to my knowledge, I feel tempted to note the case in detail.

Mrs. H. G., a Hindu married lady, aged 40 years, with anxious and melancholic look, was examined for eye trouble, the main complaint being dimness of vision, headache, and regular monthly attacks of redness with swelling of the white of the eye associated with watering, lasting from eight to ten days on each occasion. She had also suffered from abdominal colic for the last two years.

*Examination.*—It was noticed on the first day of examination that she had three regular phlyctens, two on the outer and one in the inner margin of the cornea of both eyes. There was another in the shape of a big swelling (size of a lentil) on the outer side of the limbus a few mm. away from it in the right eye. There was no corneal infiltration and the injection of conjunctival vessels was very marked. The photophobia was not prominent but lacrymation was profuse.

Refraction: R.E. 4/60 + 2.00 D.sph. = 6/24.

L.E. 6/18 + 0.25 D.sph. ⊃ + 0.50 D.cyl. 90° = 6/9.

No medicine was prescribed, and I was informed that the signs would disappear with the cessation of the menses, which were generally profuse and lasted from eight to ten days.

The next examination was made a fortnight later. The complete subsidence of the conjunctival inflammation in both eyes was noticed. The eyes were then thoroughly homatropinized and examined. R.E. 4/60 + 3.50 D.sph. = 6/24. L.E. 6/24 + 1.50 D.sph. ⊃ + 0.50 D.cyl. 90° = 6/9.

Fundus oculi: Media clear. No evident pathological lesion could be seen in the disc, vessels, or macula of either eye.

She was again seen during the next menstrual period, when the same phenomenon was observed in the eyes. Two or three phlyctens in each eye with conjunctival injection were noticed, but cornea was clear.

Patient, a highly neurotic lady, had last child-birth about 20 years ago, lived on ordinary diet, had bad teeth and poor digestion with occasional attacks of abdominal colic. She had been wearing glasses for three years. Urine report indicated presence of indican.

The further history of the case showed lessening of the conjunctival congestion with the use of full correction in her glasses, but phlyctens used to appear till the menopause set in two years later.

There was no evident tonsillar trouble, nor any enlargement of cervical glands. Whether the disturbance of the system during the periods, in the presence of some source of infection, might be the cause of the appearance of phlyctens is a matter of opinion, but the fact that they used to disappear with the cessation of flow, and completely disappeared later on with the early onset of menopause, is a singular phenomenon to note.

One might mention here that on a few occasions congestion of the eyes was very slight. It never struck her to look for phlyctens on such occasions in a looking glass. Whether the scanty flow synchronized with that could not be accurately elucidated.

## THE CIRCULATION OF THE INTRA-OCULAR FLUIDS

BY

W. STEWART DUKE-ELDER

LONDON

IN his article "On the movement of the intraocular fluid as taught by Theodor Leber" (*Brit. Jl. of Ophthal.*, Vol. XI, p. 236, 1927), Priestley Smith, by agreeing with the essential principle of my views on the circulation of the intra-ocular fluids, has added the weight of his experience as a clinician to my comparative inexperience. Of the Continental writers who have concluded that the aqueous humour is a dialysate, Magitot has definitely committed himself to the assertion that this fluid is stagnant; Hamburger considers that no circulation through the pupil exists, but that a process of cellular interchange ("cellulärer Stoffwechsel") takes place throughout the vascularized tissues of the eye associated predominantly with the iris; and Weiss considers that the question is unproven, but leads one to infer that the existence of a circulation is very questionable. On the other hand, while holding that the aqueous humour is a dialysate, I maintain that a circulation does exist (see pages 9, 77, 89, 106, 108, etc.*), and Priestley Smith agrees with me.

It is only with regard to the cause of the circulation that we differ. Priestley Smith considers that the circulation is a

* The page references throughout refer to pages in my Monograph: "On the Nature of the Intra-ocular Fluids," 1927.

"primary" one, determined by differences of pressure between the ciliary capillaries and the aqueous humour on the one hand, and the aqueous and the blood in the veins associated with the canal of Schlemm on the other; while I suggest that there is a balancing hydrostatic and osmotic pressure-equilibrium on either side of the capillary walls, which, as far as movement in mass is concerned, renders the aqueous humour "primarily stagnant," but which is continually being upset by changes in pressure occasioned by muscular action, the pulse-beat, etc. While there is thus at all times a free passage of diffusible substances through the capillary walls with a readjustment depending on colloidal impermeabilities, there is superimposed upon the dialysate a secondary or (so to say) "pressure circulation," rendered possible by the delicately balanced pressure-equilibrium at the canal of Schlemm (the "safety-valve action": see *Brit. Jl. of Ophthal.*, Vol. X, p. 550, 1926). It is to be remembered that to all intents and purposes such a circulation will be continuous, although in actual fact the forces causing it act intermittently, and these will be quite capable of determining a flow of fluid so small as exists in the eye, a point upon which Priestley Smith rightly insists.

The same state of affairs exists throughout the body generally, and it seems to me, if we take into consideration the increased impermeability of the walls of the capillaries of the eye to colloidal micelles, that the aqueous humour bears a strictly parallel analogy to the tissue fluids (see p. 108: "As with their formation, so with their metabolism *and circulation*, the intraocular fluids and the tissue fluids of the body are regulated by the same factors"). The tissue fluids are formed by the balanced inter-action of osmotic and hydrostatic forces (Starling), and they depend for their "circulation" upon muscular contraction, changes in abdominal and thoracic pressure, the movements of organs during activity, and other secondary factors, without the intervention of which they stagnate, although at the same time metabolic interchange proceeds unaffected. It is well known that if muscular movement be abolished, oedema results readily in the dependent parts, as the leg (see most recently, Carriere and Rehberg, *Skand. Arch. f. Physiol.*, Vol. XLIV, p. 20, 1923); and this seems to me to provide an analogy with the rise in the intra-ocular pressure which occurs in chronic glaucoma during the night especially towards morning, when movement of both the extra-ocular and intra-ocular muscles, which during the waking hours has been practically continuous, has been abolished for some time.

Such was the general conception of my thesis, and it seems unnecessary to amplify it further. In the matter of accounting for, and insisting upon a circulation combined with the conception of dialysis, it is new, and has not (to my knowledge) been offered before. Priestley Smith considers that I have "not made my position quite definite," and suggests that at one moment I deny the existence of a circulation

and at the next "make considerable concessions to old beliefs." I would dissociate myself from an attempt to run with the hare and hunt with the hounds, and can only apologize for my lack of clarity of expression, but at the same time would point out that in my monograph the necessity of postulating a circulation was insisted upon in page 9 as well as page 110. I will repeat and amplify the passage which was quoted: I, therefore, conceive of the eye as containing a fluid in membrane-equilibrium with the capillary blood. As such it must be essentially stagnant. (So far I agree with Magitot, Hamburger, and the implications of Weiss.) At the same time (p. 106) the evidence, physiological and pathological (which Priestley Smith quotes, and the greater part of which is essentially the same as I myself brought forward), seems to demonstrate that the existence of a circulation cannot be denied (so far I agree with the conceptions of Leber, p. 108). . . . The truth is to be found in a reconciliation and unification of the two schools of thought (p. 108).

Priestley Smith suggests that "the blood pressure is higher in the ciliary arteries than in Schlemm's canal and in the iris veins, while the aqueous pressure hardly differs at all in the two regions: it is difficult, therefore, to see how osmotic equilibrium can exist in the two regions at the same time." I know of no instance in the body where thermo-dynamical equilibrium exists through the walls of veins; it is through the walls of capillaries that metabolic changes take place. Chemical analyses, if they have demonstrated anything, have shown that the aqueous humour is in thermo-dynamical equilibrium with the capillary blood (for example, sugar, p. 28: "the concentration appears to be related more closely to the arterial than to the venous plasma"; salt, p. 30: "the aqueous comes into relation with the capillary plasma . . . . the capillary plasma is in this respect more nearly related to the arterial than the venous condition"; osmotic pressure, p. 56: "the osmotic concentration . . . . appears to lie between the point of equilibrium with arterial and that with venous blood, being much more closely related to the arterial"; and so on). There is no evidence of equilibrium with venous blood or ever any question of its occurring.

There seems little necessity to examine Priestley Smith's arguments individually, since his main contention, the existence of a circulation, is admitted, and since nowhere does he bring forward any evidence that the aqueous humour is not a product of a thermo-dynamical equilibrium, or that the circulation which is present in the eye is not determined secondarily by factors quite independent of those governing its formation. There are one or two points, however, which he brings up which may bear looking into.

I agree with Priestley Smith that Seidel's experimental work has to a large extent refuted the arguments whereupon Hamburger based his conception of a "physiological barrier" existing at the pupil; but Seidel's measurements of the venous pressure in the episcleral veins, which purported to demonstrate a pressure-gradient existing under normal conditions between the aqueous humour and the venous blood, are decidedly open to question. The measurements were taken of veins outside the sclerotic, and had no relation with the pressure-equilibrium in the eye. Seidel's measurements were approximately correct: the blood in these veins outside the eye is at lower pressure than the chamber-pressure, but the blood in the veins inside the eye and through the thickness of the sclerotic is in normal

circumstances at a higher pressure (see *Brit. Jl. of Ophthal.*, Vol. X, p. 534, 1926). Further, in dealing with injection experiments: all these are artificial. It is a contradiction in terms to speak of injecting fluid into the eye under "normal pressures." In addition, I think it is difficult to admit without reservation that Chinese ink "moves with the fluid" in which it finds ifself "until it is filtered out of it by the membranes through which the fluid passes." On the other hand, apart from the disturbed conditions of pressure which the injection entails, substances even as inert as inks have been demonstrated to excite a considerable cellular reaction in the eye (see Hamburger), and are to some extent, at any rate, actively eliminated by the phagocytic activity of the endothelial cells lining the chambers of the eye, just as all foreign material is eliminated from any part of the body into which it may be introduced. The behaviour of solid particles of Chinese ink in this case is merely a demonstration of how foreign substances are dealt with when they are introduced artificially into the eye, and can carry no legitimate conclusion as to the movement or stagnation of the intra-ocular fluids under normal circumstances. Ulbrich's observation is the most perfect demonstration of a pressure circulation that has been recorded in the literature (p. 89). Finally, the clinical evidence of glaucoma certainly demonstrates the existence of a circulation (cp. p. 106), but gives no clue as to its origin or nature.

If the aqueous humour is formed by a pressure transudation as Leber suggested and circulates actively through the eye, and if it is not a product of thermo-dynamical equilibrium, then the one fact that it contains more negative ions (chlorides, etc.) than the plasma, forces one, to my mind, to postulate that it is formed by a gland actively secreting saline (p. 103), and secreting (inexplicably) just the amount required by a dialysate. I do not think there can be any question as to the accuracy of the chemistry here, for, neglecting my own analyses which invariably showed such an excess very definitely, the excess has been demonstrated by Mestrezat and Magitot, Creveld, Gala, Rados, Ascher, and many others (p. 29). These all used modern methods of considerable accuracy, and the phenomenon was found to occur in all the animals upon which estimations have been made—man, horse, rabbit, dog, sheep, ox, etc. Such an excess cannot be accounted for by a theory of simple transudation. This fact was known, indeed, to Leber, and he himself could not explain it.

Priestley Smith is of the opinion that the conclusion that the aqueous humour is in "osmotic equilibrium"* has been reached on insufficient data, and, as it is supported, is "hardly safe." I can find no evidence, experimental or clinical, in my experience or in my reading, which can withstand reasonable and logical criticism, and which is incompatible with the hypothesis that the intra-ocular fluids are a dialysate upon which is superimposed a circulation. I have examined the alternative theories put forward from time to time and consider that in one place or another they all break down. It is true that the thesis was offered, not even as a theory,

*The term "osmotic equilibrium" does not express the condition of dialysis as well as "thermo-dynamic equilibrium," a state which depends upon the interaction of hydrostatic, electrical, and chemical, as well as osmotic forces. It is to be remembered that, as in all living systems, the equilibrium is a dynamic, and not a static one.

but only as a working hypothesis without any claim to infallibility or permanency; if substantial evidence can be brought against it, then we hope to have the pleasure of building up another. But if the aqueous humour possesses all the very definite and complicated chemical and physical properties of a dialysate, both in its normal condition and in variations from the normal, if it can be shown, not to be in "supposed osmotic equilibrium," but to fulfil, in experimental fact, the complex and peculiarly exacting hydrostatic, osmotic, electrical, and chemical conditions required by a system in thermo-dynamical equilibrium with capillary plasma, and if at the same time no adequate objection is put forward or alternative and unassailable explanation is advanced, there seems to be no valid reason at the present time against the adoption of such a working hypothesis.

## ANNOTATIONS

### The International Congress of Ophthalmology, 1929

We have much pleasure in announcing that the re-establishment of International Congresses of Ophthalmology is an accomplished fact. The next Congress will take place in Holland in September, 1929. This satisfactory conclusion to negotiations which have spread over several years is due in the first place to the perseverance and tact of the Anglo-American Committee which was appointed by the English-Speaking Conference of Ophthalmology. Of the members of that Committee the chief burden has fallen upon Mr. Treacher Collins, the chairman, and Mr. Leslie Paton, the secretary. Even their efforts, however, might have been frustrated had it not been for the genius and geniality of Dr. van der Hoeve, of Leyden, who presided over the Conference of delegates from all nations which met in July at Scheveningen. The congratulations and thanks of all ophthalmologists throughout the world are due, and will be willingly and gratefully accorded, to these three intermediaries in the re-establishment of plenary international relations so far as they affect ophthalmology.

### William Mackenzie Memorial

On another page of this number will be found an announcement of a proposed memorial to the great Scottish ophthalmologist of the last century. Details will be found in the note; and it is only

necessary here to express the hope that the fund will meet with a liberal support. In England there are several honours of this kind, *e.g.*, the Middlemore Lecture, the Nettleship Medal, and the Gifford-Edmunds Prize; it is only fitting that the genius of the great Mackenzie should receive this recognition at the seat of his labours.

To those who know anything about the rise of ophthalmology in this country it is unnecessary to say anything about Mackenzie, and those who do not know much about him should read the memoir by Dr. Freeland Fergus in Vol. I; and having read that they might do well to read his epoch-making textbook. No surer way of keeping his memory green can be conceived than this proposed medal for the encouragement of ophthalmological research. The elders of the ophthalmic fraternity can echo the words of the writer of Ecclesiasticus: "Let us now praise famous men and the fathers that begat us"; while the younger among us should strive to follow in his footsteps.

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### Ophthalmic Folk Lore

"The Diary of a Country Parson," Vol. III, by the Reverend James Woodforde has just been published by Humphrey Milford, and contains help for every ophthalmic surgeon. The present volume continues the daily account of his life at Weston Longeville in Norfolk during the years 1788 to 1792.

On March 10, 1791, he notes: "My right Eye-lid very much swelled and inflamed having a Stiony on it, very painful all day." On March 11 he says: "The Stiony on my right Eye-lid still swelled and inflamed very much. As it is commonly said that the Eye-lid being rubbed by the tail of a black Cat would do it much good if not entirely cure it, and having a black Cat, a little before dinner I made a trial of it, and very soon after dinner I found my Eye-lid much abated of the swelling and almost free from Pain. I cannot therefore but conclude it to be of the greatest service to a Stiony on the Eye-lid. Any other Cats Tails may have the above effect in all probability—but I did my Eye-lid with my own black Tom Cat's Tail."

It is, therefore, clear that no ophthalmic surgeon's equipment is complete if he has only a slit-lamp, he must also invest in a black Tom Cat. The author does not note if the Tail of a black Tom Cat can be used more than once, but owing to the number of such animals seen prowling round Harley Street, Wimpole Street, and Welbeck Street, it seems probable that after having been once used for this important therapeutic purpose, they are cruelly dismissed by their breeders, the physician-ophthalmologists, who are aware of this remedy for Stiony.

## RE-CONSTITUTION OF INTERNATIONAL OPHTHALMOLOGICAL CONGRESSES

THE Convention of English-speaking Ophthalmologists, at a meeting held in London in 1925, asked its President, Mr. Treacher Collins, to nominate a small committee, whose function it would be to try to bring about a renewal of the periodical International Ophthalmological Congresses which, previous to the war, were held every fourth or fifth year. Mr. Collins nominated Dr. Edward Jackson of Denver, Dr. George de Schweinitz of Philadelphia, Sir John Parsons and Mr. Leslie Paton of London, as members of this committee of which he himself acted as convener. The work of this committee during the last two years resulted in the calling of a Conference at Scheveningen last week, from July 12-15, which was attended by forty-eight delegates, representing twenty-five different nationalities. Of these delegates: one came from Chili, Dr. Thierry; two from the Argentine, Dr. Argañaraz and Dr. Demaria; two from Japan, Professor Hata and Lieut.-Comd. Tagawa; two from the United States, Dr. de Schweinitz and Dr. Parker; and two from Egypt, Dr. Meyerhoff and Dr. Riad. All the principal European nations except Russia, Turkey, and Greece were represented.

Much of the great success of the Conference was due to the hospitality and forethought of the Dutch hosts, Professor van der Hoeve of Leyden, Professor Rochat of Groningen (President of the Netherlands Ophthalmological Society), and Dr. Marx of Leyden.

On Tuesday, July 12, in the afternoon, a preliminary meeting was held in the Orange Hotel, Scheveningen, at which Professor Rochat welcomed the delegates equally eloquently in English, French, German, and Italian. Mr. Treacher Collins then explained the circumstances which had led up to the summoning of the Conference and gave a short history of the previous International Congresses. He then moved that Professor van der Hoeve should take the Chair. Mr. Leslie Paton of London, Dr. Marx of Leyden, and Dr. Pflüger of Berne were nominated to act as Secretaries of the Conference. The principal motion: "That the International Congress of Ophthalmology be re-constituted" was carried by acclamation, and four committees were appointed: (*a*) to consider rules and by-laws; (b) to consider the place and date of the first meeting of the new Congress and the subjects for discussion; (*c*) to consider the question of finance; and (*d*) to consider what questions of international ophthalmological importance should be remitted to the Council for discussion.

On the evening of Tuesday the Anglo-American Convening Committee entertained the delegates to dinner at the Palace Hotel.

On Wednesday, July 13, the Committees met in the morning and so smoothly did the work go that all the reports were ready before eleven o'clock. In the afternoon the Conference were the guests of Professor van der Hoeve in an excursion by car and steamer to Leyden and the lake district in the neighbourhood. In the evening Mr. and Mrs. van der Bergh entertained the delegates to dinner and a garden party in their beautiful garden at Wassenaar near The Hague.

On Thursday morning the reports of the committees were received. Invitations had been received from Denmark, Egypt, and Holland for the first Congress and from Madrid for the second Congress. It was unanimously decided that the first Congress should be held at Amsterdam in September, 1929. The new rules and by-laws were unanimously adopted by the Conference. The subscription was fixed at £2 sterling, or an equivalent sum, for members and £1 for Associates.

Apart from the expenses of the Congress itself a fund would be required to meet the expenses of the International Council to hold office in the period intervening between the Congresses. Already a certain amount of expense had been incurred in preparation for this Conference. To meet these and other Council expenditure it was resolved to ask for voluntary subscriptions of not more than £5, or less than £2, from ophthalmological or other medical societies, or from individuals. Any society subscribing will be entitled to receive a copy of the "Transactions" of the Congress for its Library. In this way it is hoped to secure a sum sufficient to meet the expenses of the Council other than those directly connected with the Congress.

The management and finances of the Congress itself will be controlled by a National Committee elected by the ophthalmologists of the country in which the Congress is to be held, and working in conjunction with the International Council.

It was remitted to the Council to decide on the subjects for discussion, both at the Congress and by special committees to be appointed by the Council.

An International Council was then appointed to hold office until the Congress of 1929. It consisted of Professor van der Hoeve (Netherlands), Chairman; Professor Lundsgaard (Denmark), Vice-Chairman; Mr. Leslie Paton (Great Britain), Treasurer; Dr. Marx (Netherlands), Secretary; Geheimrath Professor Axenfeld (Germany); Dr. Byers (Canada); Professor Coppez (Belgium); Professor Marquez (Spain); Professor Meller (Austria); Dr. Morax (France); Professor Ovio (Italy); and Dr. de Schweinitz (United States). As the concluding act of the Conference Mr. E. Treacher Collins was elected Honorary President of the International Council by universal acclamation, and as a tribute to all the work

he had done towards ensuring the success of the Conference and the future of international ophthalmology.

After the finish of the formal business of the Congress the delegates were taken by cars to Nordwyk-on-Sea, where they were entertained to lunch by Professor van der Hoeve, whose health was proposed in eloquent Latin by Professor Ask, backed up in English by Dr. de Schweinitz, in German by Geh. Professor Axenfeld, in English by Professor Argañaraz, in Italian by Professor Ovio, and in French by Dr. Velez. After lunch the delegates visited the palatial new ophthalmic clinic at Leyden and looked with envy on the spacious rooms and accommodation provided there for ophthalmological work.

It would be wrong to conclude any notice of this Conference without remarking on the friendliness and unanimity with which every member worked towards securing the common aim. Those who worked together to bring about the meeting were not altogether free from anxiety as to how matters would turn out, but, in the very first moments these doubts were removed and subsequent meetings only increased the feelings of good fellowship. Undoubtedly, the extremely generous hospitality which was shown on all hands had much to do with this and none who took part in the proceedings will readily forget the visit to the lakes or the evening at Wassenaar and the delights of Mr. and Mrs. van der Bergh's party, or the luncheon party given after the meeting by Professor van der Hoeve, with the surprise speech delivered by Professor Ask of Sweden in fluent and classical Latin, so that all the delegates might understand it without the necessity of translation. The thanks of the ophthalmological world are due to all those who worked so hard to bring about this meeting and to render the prospect of renewed ophthalmological congresses so rosy. Certainly, no one who visited Scheveningen last week will want to miss the Congress at Amsterdam in September, 1929.

# ABSTRACTS

## I.—DISEASE OF RETINA

(1) **Löwenstein, Arnold (Prague).—On the aetiology and treatment of retinal detachment. (Zur Entstehung und Behandlung der Netzhautablösung.)** *Arch. f. Ophthal.*, Bd. CXVII, 1926.

(1) According to **Löwenstein** the essential factor in the predisposition to detachment of the retina in high myopia is the disproportion between the enormously enlarged scleral capsule

and the contents of the eye, mainly the vitreous, resulting in a diminished tension of the eye, *i.e.*, in a diminished pressure of the vitreous on the retina against the scleral capsule.

He rejects the view that myopic detachment is to be classed in line with that occurring in senile cases, and he holds that the subretinal fluid is derived from the choroidal vessels and not from the vitreous. In an eye so predisposed relatively trivial injuries to the sclerotic, which in a normal eye heal without any trace, may lead to progressive detachment of the retina. Peripheral choroiditis is, in his opinion, a frequent cause of such detachment: owing to a process of degeneration in the periphery of the choroid and retina there follows an obstruction of the choriocapillaris between the equator and the ora serrata, which either leads to a spontaneous exudative choroiditis or favours the deposit of bacteria. While in a normal non-myopic eye a subretinal exudation may remain for a time and become absorbed, it sinks in the case of the degenerated myopic eye, and as the vitreous does not exert normal pressure on the retina against the sclerotic the retinal detachment progresses.

In the causation of myopic detachment of choroiditic origin he emphasizes the importance and frequency of tuberculosis, but exudative choroiditis from other causes together with the frequent peripheral degenerative patches in high myopia are also possible aetiological factors.

For treatment a thorough examination for the underlying cause is necessary, a test with old tuberculin should be made, and where this proves positive a course of treatment with tuberculin must be adopted. Where the intraocular tension is diminished, he strongly recommends calfeutrage as proposed by Lagrange (*vide Brit. Jl. of Ophthal.*, Vol. VIII, p. 295, 1924), with injections of hypertonic sodium chloride into the orbital tissues and tapping of the subretinal fluid: this is combined with long continued diet deficient in sodium chloride. The author deprecates the use of pressure bandage, pilocarpine and continued rest in bed.

THOS. SNOWBALL.

(2) **Deutschmann, R.—Old and new facts concerning retinal detachment. (Altes und Neues über die Netzhautablösung.)** *Arch. f. Ophthal.*, Bd. CXVII, 1926.

(2) **Deutschmann** deals here exclusively with cases of genuine detachment of the retina, *i.e.*, cases in which there were no clinical signs of a syphilitic or tuberculous choroiditis or a toxic one due to other constitutional diseases, or of tumour or trauma. He reviews and criticizes the views of various writers on the causation of this affection as well as on the different methods of treatment.

He adheres to Leber's retraction theory emphasizing the funda-

mental importance of the degenerative changes, and shrinkage, in the vitreous, as also the presence of myopia. The rents in the retina he regards as a phenomenon secondary to the subretinal transudation from the choroid, and explains why the detachment usually begins in the upper part of the retina. In contrast to writers who lay stress on the presence of hypotony as an aetiological factor he points out that in his cases, especially in the most recent ones, this clinical sign was comparatively seldom observed. Lister's suggestion (*Brit. Jl. of Ophthal.*, Vol. VIII, p. 16) that "if it could be proved that holes in the retina do not occur in detachment due to neoplasm we should have an important clue for differential diagnosis" is not borne out by his experience.

Deutschmann passes in review, and mostly rejects the various therapeutic measures that have been proposed in recent years, but Lagrange's calfeutrage he has not tried. He has never found a salt-free diet to have any influence on the disease.

His own method of treatment has been twofold:

(*a*) He waits till the subretinal fluid sinks with replacement of the detachment above, and if there is a rupture in the retina he gives it time to close before he operates. If it remains open, he proceeds with incision of the vitreous. In recent years he has given, immediately afterwards, subconjunctival injections of 5 per cent. dionine solution.

(*b*) Injections of vitreous humour from the calf are used where the first method fails.

He has tried various substances for injection into the vitreous, but has not yet found one quite satisfactory. In a series of 539 cases on which he has operated and which he has had under observation for over two years, including cases that offered no prospect of cure, 21 per cent. have been cured, and 35 per cent. improved.

THOS. SNOWBALL.

(3) **Bolle, Pierre (Geneva).—The treatment of primary detachment of the retina (in recent cases). (Traitement du décollement primaire de la rétine (dans les cas récents.)** *La Clin. Ophtal.*, November, 1926.

(3) This appears to be an abstract from *Schweizerische Med. Wochenschr.* (no date given) of an article dealing with a paper by **Bolle** at the Paris Academy of Medicine, May 18, 1926. In this article Bolle states that he has had 100 per cent. cures in six cases of recent primary detachment of the retina by a method which consists essentially in the injection of two different strengths of sodium chloride (1) at the site of the detachment at the moment

of operating; (2) at the antipode of this site, both injections being made at the same time or within fifteen minutes of each other. No doubt details of these cases will have been given in the original paper to the Paris society, but in this abstract not one word is said about the cases themselves nor are the results stated except in so far as the condition is "cured." The optimistic outlook of the author is obvious from the opening sentence of the abstract. "After patient study and difficult trials since 1920 the conclusion has been reached that primary detachments, which represent 80 per cent. of the cases can be cured by the rational application of a special technique and the observance of certain factors which are indispensable, namely, (1) the dosage of the remedy; (2) the method and the frequency of the injections; (3) the localization of the puncture; (4) the position of the patient and the inclination of the head." It may be added that complete rest in the horizontal position is demanded.

ERNEST THOMSON.

(4) **Blake, Dr. E. M. (New Haven, Conn.).—Congenita pigmentation of the retina.** *Trans. Amer. Ophthal. Soc.* Vol. XXIV, 1926.

(4) **Blake** records six cases of this condition which was first described by Mauthner and illustrated in von Jaeger's Atlas. Several cases have also been recorded in the *Trans. Ophthal. Soc. U.K.*, the first being due to Sydney Stephenson in 1891 (illustrated by a coloured plate). Blake gives an account of the highly characteristic ophthalmoscopic picture, and illustrates it with a drawing. He points out that the essential feature is a group or groups of darkly pigmented spots, generally arranged in a particular sector of the fundus. The area affected varies considerably in size. As a rule the spots are not associated with any other ocular disease. Although it is universally assumed that the spots are congenital they have not so far been observed before the age of two years. Only one case has been studied microscopically, by Parsons (*Tenth International Congress of Ophthal.*, 1904, p. 152), who found that the spots were due to aggregations of deeply pigmented epithelial cells in the retina, some of them surrounding nodules of hyaline material. He believes that the condition results from an abnormal union of two layers of the secondary optic vesicle. A useful bibliography accompanies the paper. Blake draws particular attention to a paper by Hoeg (*Klin. Monatsbl. f. Augenheilk.*, 1911, p. 49) as containing a very full account of the condition.

E.E.H.

(5) **Kahler, H. and Salimann, L. (Vienna).—Retinal changes in diseases of the kidneys and blood-vessels.** (**Ueber die Netzhautveränderungen bei Nieren- und Gefässer-krankungen.**) *Zeitschr. f. Augenheilk.*, Bd. LVII, SS. 387-423, 1925.

(5) A long and detailed study of 127 clinical cases has led **Kahler** and **Salimann** to conclude that in diseases of the kidneys and blood-vessels retinal changes are met with only when the general blood pressure is pathologically high, and that the incidence of these changes depends largely on whether the hypertension is due to a toxic cause or to a condition of irritability acting centrally on the vaso-motor centre in the brain (an essential central hypertension). In essential hyperpiesia sclerosing changes predominate in the fundus picture; in the raised tension of toxic states retinitic changes are marked. From these latter it is unsafe to conclude that there are definite kidney lesions present: in their production the most important factor is the active narrowing ("Tonussteigerung") of the lumen of the retinal vessels from central vaso-motor irritation, while the exudative deposits are to be correlated with a chemical change in the blood superadded to the circulatory changes, which is manifested by a raised cholesterol content in the serum.

W. S. DUKE-ELDER.

(6) **Douglas and Griffiths.—Albuminuric retinitis of pregnancy.** *Med. Jl. of Australia*, May 15, 1926.

(6) This article by **Douglas** and **Griffiths** includes a description of clinical cases, and a short survey of general considerations concerning these not uncommon complications of pregnancy. It is mainly addressed to the general practitioner, who is usually the first to see such cases. From among the "general considerations," the following may be quoted with advantage.

"The disease is a sign that the functional activity of the kidneys has temporarily given way. It need not therefore be expected to recur in subsequent pregnancies unless the kidneys again break down and not necessarily even then. It differs from other forms of renal retinitis in its rapid onset, short sharp course, and quick recovery under treatment: also in being more frequently associated with retinal detachment. These detachments fortunately tend to run a benign course and recover completely. The extent of the retinal exudates and the severity of the optic neuritis are of less prognostic import than the amount of haemorrhage present, which last varies directly with the severity of the toxaemia."

The authors are most urgent in their advice as to treatment, *e.g.*, immediate induction and fairly rapid completion of premature labour. They consider that labour should, if possible, be completed within thirty-six hours. A longer period may result in disaster

in regard to vision. As the majority of these cases fortunately occur in the seventh month, the child has an excellent chance of living.

E. MAXWELL.

## II.—LACRYMAL DISEASE

(1) **West, Dr. J. M. (Tamaqua, Pa.).—The intranasal lacrymal sac operation.** *Arch. of Ophthal.*, July, 1926.

(1) **West's** paper opens with a review of the usual methods adopted in the treatment of lacrymal obstruction and he concludes that the results obtained are only partial. A suppurating sac may be removed or, in lucky cases, a fistula be closed, but the epiphora remains, whether the lacrymal glands are removed or not. He has seen patients, who in the course of eighteen months have had 150 probings without any improvement whatever, also patients who have worn permanent sounds over periods of years without any result. The author considers that his intranasal operation has the following advantages over Toti's procedure: (1) the percentage of cures is about 90 and the operation is applicable to all the different types of dacryostenosis, *e.g.*, whether the sac is dilated or not; (2) the anatomical relations of the internal palpebral ligament, the canaliculi and the skin, are left undisturbed; (3) there is no incision of the skin with the risk of subsequent scarring and keloid formation. The technique of the operation, as at present performed, is as follows: Incisions are made, intranasally, through the mucous membrane of the nose, so that a large flap of it can be turned aside from the region of the lacrymal fossa and hung down over the inferior turbinate, which is left intact. The bony wall of the lacrymal fossa is then removed with chisels and the sac is exposed. If the case is an old chronic one, the sac having thickened walls, it is removed *in toto*; in other cases the nasal wall only is removed. The mucous membrane flap is now returned to its original position and the nose tamponed. Bacteriological investigations showed that pneumococci disappeared from the conjunctival sac within one or two days after the operation, whereas Mattier, in Axenfeld's clinic, found pneumococci persisting in the conjunctiva in 43 per cent. of cases after external extirpation of the sac. In summing up the author mentions among other things that the operation is performed under local anaesthesia, that the entire treatment is usually completed in about a week, and that it affords the most satisfactory way of treating lacrymal fistulae and of rendering the conjunctiva sterile in cases of cataract complicated by dacryocystitis.

F. A. WILLIAMSON-NOBLE.

(2) **Graves, Basil (London).—Making a new lacrymal punctum.** *Amer. Jl. of Ophthal.*, September, 1926.

(2) **Graves's** operation is submitted as being an improvement on the usual procedures of slitting the canaliculus or of making "three snips." It is performed as follows: After examination, the misplaced punctum is carefully dilated until the fine nozzle of a lacrymal syringe can be inserted and the patency of the passages proved by syringing. A special instrument known as Critchett's grooved probe is then passed along the canaliculus and into the sac. The patient looks up and the groove of the probe is turned towards the globe, or even a little downwards, towards the inferior fornix. The point of a fine Graefe knife or a Ziegler needle, with the cutting edge towards the globe, is now placed in the groove and the punctum and canaliculus are cut open for a distance of two millimetres. After further cocainization, the lower lip of this wound is grasped in iris forceps, slightly pulled on, and cut off with Stevens's scissors. The result is to have a small triangular opening, apex downwards, in contact with the globe. If in elderly people, the new punctum is still not in the correct position the conjunctiva below it may be lightly cauterized.

F. A. WILLIAMSON-NOBLE.

(3) **Jocqs, R. (Paris).—On the treatment of lacrymal tumour. (Sur le traitement de la tumeur lacrymale.)** *La Clin. Ophtal.*, December, 1925.

(3) **Jocqs** in this article gives an extremely lucid summary of the treatment he has described time and again, in *La Clinique Ophtalmologique* for 1900, 1901, 1916, 1917-18, and 1920, for what in this country would presumably be described as mucocele, and for which many would operate by excision of the sac. The treatment takes longer than excision, about a fortnight, but is said to be very satisfactory. The method is an elaboration of the method of cauterization, by means of a 50 per cent. solution of chloride of zinc. The following is a *résumé* of the steps of the operation.

*First day*, open the sac freely from above downwards, wash out and then pack with greased absorbent cotton. Bandage. *Second day*, remove the tampon, to find the sac dilated ad maximum. With good illumination and wide separation of the edges notice the retracted part at the bottom of the pocket which is the opening of the bony lodgment of the sac. This part must not be cauterized. With absorbent cotton on a match stick, dipped in the chloride of zinc solution, carefully cauterize the dilated portion of the sac, sparing the lower portion above referred to. Previous to this the wall of the sac is to be carefully mopped with a cocaine-adrenaline pledget and then dried out. After the cauterization pack with

greased absorbent cotton. *Third day*, carefully remove the tampon and pass sounds of increasing diameter through the nasal duct. Pack as before. On the following days pass sounds in the same way, gradually diminishing the packing, and finish by a light curettage of the parts of the sac which have been cauterized. After this a light dressing, without packing, until healing is complete.

It occurs to the reviewer that it might be very difficult to avoid contact of the lower part of the sac with the caustic solution, but the secret here probably is that the sac is opened so widely that one can see exactly what one is doing.

ERNEST THOMSON.

## III.—ANATOMY AND PHYSIOLOGY

(1) **Beauvieux and Dupas (Bordeaux).—A study of the topographical anatomy and the histology of the ophthalmic ganglion, in man and some animals.** (*Étude anatomo-topographique et histologique du ganglion ophtalmique chez l'homme et divers animaux.*) *Arch d'Ophtal.*, November, 1926.

(1) This communication by **Beauvieux and Dupas** embodies the results of a prolonged study of the ciliary ganglion based upon eighty dissections and a large number of microscopic sections of ganglia from the human species, the dog, cat, and pigeon. It contains nineteen illustrations (two full page plates) in black and white, which add greatly to the interest of the paper. Details of the anatomy of the ganglion, omitted from this paper, appeared in a graduation thesis by Dupas in 1924.

Numerous careful measurements (of which the figures are given in the text), prove that the exact position of the ganglion in the orbit is by no means constant, though the degree of variation is limited to a few millimetres. The antero-posterior axis of the orbit varies between 42 mm. and 50 mm. The ganglion is situated in the posterior part of the orbit and has never been found anterior to one-third the distance between the sphenoidal fissure and the posterior pole of the globe. It lies applied to the temporal surface of the optic nerve and externally is in relation with the cellular fatty tissue of the orbit, which separates it from the inner surface of the external rectus muscle and the abducens nerve. In six of eighty subjects a muscular branch from the ophthalmic artery was in close relation to the outer surface of the ganglion. In the eighty dissections the inner surface of the ganglion was in contact with the ophthalmic artery thirty times; with the central retinal artery eight times; with a short or long posterior ciliary artery twenty-eight times; in twelve specimens there was no artery between the ganglion and the optic nerve.

The afferent branches or roots of the ganglion do not call for comment. Examination of the efferent branches showed that although fairly often these are in two groups, the more common arrangement is into three bundles: (1) an upper group of two to three filaments emerging from the antero-superior angle of the ganglion and following an oblique upward course round the upper border of the optic nerve to penetrate the posterior pole of the eyeball; (2) a middle group of five filaments arising from the anterior border of the ganglion and passing along the external border of the nerve with the posterior ciliary arteries; (3) a lower group of two to three filaments from the antero-inferior edge of the ganglion, whose course is along the lower border of the optic nerve.

The ganglion was absent in two of the eighty subjects: supernumerary ganglia are occasionally found. The motor root is sometimes wanting: in three of the eighty cases it was double or multiple. The sensory root may be absent or may be double. In nine subjects the sympathetic root was absent: in such instances the sympathetic filaments probably joined the sensory root in its passage through the cavernous sinus. In a certain number of dissections supplementary roots were found coming from the superior division of the third nerve, from the frontal, malar, and lacrymal branches of the fifth nerve, and in six of the eighty subjects from the spheno-palatine ganglion across the palatine fissure.

Details of the technique to be observed in the removal of the ganglion in the living subject follow this section of the paper.

*Histology.*—The ophthalmic ganglion has been designated in turn as a spinal ganglion, as a sympathetic ganglion, and as a mixed ganglion, *i.e.*, a ganglion containing elements of the spinal nerve system and others of the sympathetic system. (The names of numerous observers are given in the text.) Recently Laignel Lavastine, following Langley (who under the term "parasympathetic" describes the sympathetic as a collateral system composed of a cephalic portion derived from the midbrain and the medulla oblongata, and a sacral portion arising from the spinal cord) considers the ciliary ganglion as a parasympathetic ganglion connected with the oculo-motor nerve (ocular parasympathetic or tectal).

These researches were undertaken by the authors in the hope of determining the nature of this ganglion in man, and equally in the dog, cat, and pigeon. The histological examination has evidently been carried out with thoroughness and great attention to detail: the report is very long but will repay perusal. Here we can but give a brief résumé, in the authors' words, concerning the ganglion in man:

"(1) The nerve cells of the ciliary ganglion are multipolar; they present all the characters of cerebro-spinal cells. But, in that they possess: (*a*) a connective tissue capsule with an endothelial lining; (*b*) a single axis-cylinder extension forming a central, commissural, or peripheral fibre; (*c*) short dendriform prolongations; they resemble more particularly the type of cell found in the sympathetic ganglia.

"(2) The fine fibres found in the efferent branches of the ganglion and in the short ciliary nerves are analogous to those of the optic nerve and of the branch of the oculo-motor nerve to the inferior oblique muscle; they are consequently myeline fibres. Do they correspond to the fine fibres which histological research by Cajal's method demonstrated to Retzius, Bach and others? We are unable to affirm this. These authors have described, in the nerve fibres of the ganglion, very fine fibres which, either isolated or in groups, gain the motor or the sensory root and, according to Michel, among these fibres there are some which traverse the structure without stopping: they are derived, he believes, from the fifth nerve: others on the contrary terminate in the ganglion, arranged like basket work and forming verrucosities around the multipolar cells. These latter fibres in Michel's view are derived from the third nerve.

"(3) The larger moniliform fibres, axons of the ganglionic cells, pass into the efferent branches of the ganglion forming with the myeline fibres, the short ciliary nerves."

In the ciliary ganglion of the dog the cells are multipolar, but they differ in type from those of man. The authors nevertheless are of opinion that they belong to the sympathetic system. In the cat the ganglionic cells are multipolar and similar in type to those in man. The ganglion cells of the pigeon are unipolar. The writers do not feel convinced that they belong to the same type as the cells of true spinal ganglia.

J. B. LAWFORD.

(2) **Dejean (Montpellier).—Anatomical and embryological study on the hyaloid membrane of the mammalian eye. Its function in the formation of the structures of the eye. Its limits. Its structure. (Studio anatomico ed embryologico sulla membrana ialoide dell'occhoi dei mammiferi. Sua funzione nella formazione dei centri dell'occhio. Suio limiti. Sua strutta.)** International Prize Thesis read before the Ophthalmological Congress in Rome, 1925. ***Atti del Cong. d'Oftal.*,** Roma, 1925.

(2) **Dejean** states that if fresh eyes are examined there can be no doubt of the existence of the hyaloid membrane. If from a fresh eye one dissects away the sclera, the choroid, and the retina,

the vitreous falls away as a transparent sphere which can be handled and examined under water without change because it is enclosed in the hyaloid membrane. If an opening be made through this membrane the vitreous at once herniates through. The hyaloid membrane is not a condensation of the vitreous, but the vitreous is formed by proliferation and foliation of the hyaloid. The hyaloid gives the staining reactions of collagen. Embryological studies show in very early stages of development a layer which gives collagen reactions lining the optic vesicle, and another layer investing the lens. These hypertrophy and fill the space between retina and lens.

The author describes a ciliary portion of the hyaloid as closely applied to the non-pigmented cells of the ciliary body, and by its hypertrophy and fibrillation forming the fibres of the zonule of Zinn. This portion of the hyaloid passes into the anterior capsule of the lens. The anterior hyaloid which separates the vitreous from lens and zonule he describes as being not true hyaloid, but as a condensation of the oldest part of the vitreous pushed forward into this region and that of the canal of Cloquet by the hypertrophy of that more recently formed.

The examining Committee comments that the thesis is an important piece of work, but thinks that the conclusions of the author should not be accepted without further work being done.

ARTHUR D. GRIFFITH.

(3) **Ramsay, A. Maitland (St. Andrews).—The muscle of the heart, the intestinal tract, the iris, and the ciliary body: an analogy and a contrast.** *Glasgow Med. Jl.*, December, 1926.

(3) The title chosen for his 1926 introductory lecture by the Honorary Director of the James Mackenzie Institute for Clinical Research at St. Andrews is an arresting one. **Ramsay's** aim in this lecture is to show the essential similarity between the neuromuscular apparatus of the eye, the heart and the intestinal tract. He points out the analogy between the iris and the heart. Both are innervated by a cranio-autonomic nerve on the one hand and by the sympathetic on the other, and in both instances the object is to bring about a state of equilibrium. So also in their reaction to drugs there is great similarity, atropine in both cases paralyzing the nerve endings of the cranio-autonomic nerve, physostigmine being the direct antagonist to atropine in the one case and digitalis in the other. One may conclude the mention of this lecture with a full-length excerpt from it which seems particularly to merit attention. "In the healthy state there is a constant give and take between the cranio-autonomic and the sympathetic nervous system; so much is this the case that it is not possible to say with certainty what is the normal diameter of the pupil

whose static equilibrium is constantly varying, not only under the influence of light and of sensory impressions from all over the body, but also according to the age and the general health of the individual. Constant slight oscillations of the pupil, moreover, follow the beating of the pulse and the movement of respiration. It contracts in systole and dilates in diastole; it contracts in expiration and dilates in inspiration. In hippus there are many features analogous to the irregularity of the pulse in youth. In the eye the separation of sphincter and dilatator muscles as well as of oculomotor and sympathetic nerves is so complete that a study of the oscillations of the pupil ought to be of considerable assistance in explaining the mechanism of the beat of the heart and the peristalsis of the bowel."

ERNEST THOMSON.

(4) **Yudkin, A. M. (Yale University).—The aqueous humour.** ***Jl. Amer. Med. Assoc.,*** December 4, 1926.

(4) **Yudkin** summarizes the more important literature on the experimental work on the composition of the aqueous humour which has been published up to about eighteen months ago. His own experiments have been carried out on dogs. He finds that the aqueous has a fixed refractive index. In lowering the ocular tension by the removal of fluid from the vitreous chamber or the anterior and posterior chambers, the physical properties are modified so that the refractive index of the aqueous is increased. There is no evidence that the ciliary body acts as a gland and secretes the aqueous humour as a true secretion. Adrenaline decreases the permeability of the capillaries so that less crystalloid and colloid substances find their way into the aqueous after the normal mechanism is interfered with. Pilocarpine and eserine increase the permeability of the capillaries so that the refractive index becomes higher than normal. Injection of saline solution, mercuric oxycyanide, or atropine does not seem to interfere with the filtration process of the aqueous.

A. F. MACCALLAN.

(5) **Evans, Dr. J. N. (Brooklyn, N.Y.).—Angioscotometry.** ***Amer. Jl. of Ophthal.,*** July, 1926.

(5) In this paper **Evans** gives an account of the methods used and the results obtained in an investigation of the scotoma which the retinal vessels seem to project, as an area of absolute blindness. As we are publishing in this number a later paper by the author on this subject in which details of results are also given it will only be necessary to deal in this abstract with his methods. His account is as follows:

"(1) It is understood the usual precautions for control of position, comfort, distractions, etc., are taken.

(2) Distant correction should be worn.

(3) The stereo-campimeter and Lloyd Chart are used.

If both eyes are used (binocular fixation) the muscle balance should be checked and corrected by the instrument. Monocular fixation is very satisfactory—a blinder covering the eye not in use. The monocular method was used in these studies.

(4) The object used for much of this work was the smallest white disc provided with the instrument (0.5 degree),* but more satisfactory objects can be made by fusing into beads the end of hair-like silver wire (such as the strings of musical instruments are overspun with). These minute spheres are then exposed to the fumes of hydrochloric acid to give them a lustreless, dull white finish; or, if a chalky white finish is desired, they may be dipped in ordinary white writing fluid. They can be easily mounted by thrusting the appended wire through a pin hole in a strip of the chart paper. It is of advantage to vary the size according to the reactions of the particular case. Some spheres will be too small, others too large; some too dull, others too bright. The white balls get duller with age and are brightened by dipping in the acid or ink. The great difficulty in producing even reasonably accurate objects of fractional millimetre sizes cannot be realized until the attempt is made. The writer worked on the problem for nearly two years and consulted many sources to no avail until the above described method was hit upon. With a little practice very accurate spheres can be made, even smaller than 0.25 mm. and can be measured with a micrometer.

(5) The point of fixation is made bright and sharp by a very white chalk mark. This is in accordance with the principle set forth in Helmholtz—when the object is bright and sharp that portion of the retina is sought out (the fovea) in which such objects are best seen; whereas, if the object be dim, that portion of the retina best suited to dim perception is sought (extrafoveal).

(6) †The lamp used is one specially designed to give shadowless illumination, standardizable and uniform in colour and quality, supplying an intensity of fifteen foot-candles (measured on the slate with the ‡General Electric Company's foot-candle meter). It is so attached that the light maintains the same relation to the slate during adjustments of the instruments, and is passed through a bluish ground glass to give the quality of daylight (as used by Bausch & Lomb Company in their Ives Visual Acuity objects).

(7) The method of signalling is usually by tapping.

* The manufacturers of the stereocompimeter (B. & L.) supply the objects in two scales, one marked in degrees the other in millimetres. Those marked in degrees are preferable.

† Mechanical construction by J. H. Penny, 324, Livingston St., Brooklyn, N. Y.

‡ Edison Lamp Works of General Electric Co., Harrison, N. J.

(8) Markings are made with light coloured fine pointed wax pencil (of the newer metal magazine type) directly, instead of being copied from the slate on white records. As suggested by the writer (*Amer. Jl. of Ophthal.*, September, 1924—Campimeter Recording and Plotting Chart), this method reduces time and effort about fifty per cent.

(9) The subject is allowed to close his eye frequently.

(10) The blind spot is outlined as usual by passing from the seeing to the non-seeing area, and a line connecting the dots is drawn.

(11) The object is next moved in a wandering fashion around the periphery of the blind spot, a millimetre from it, until it suddenly disappears, when a dot is marked. This place is then approached from the opposite direction and at right angles to the supposed course of the vessel but at about 2 mm. further from the edge of the blind spot and its point of disappearance again noted. Alternate sides are thus plotted, each point being about 1 mm. in advance of the preceding. In this way branching and cross-vessels are not missed, and the twistings and widenings are easily followed.

(12) If a crossing vessel is picked up far out it can be traced in a similar way to the nerve head, but it is very difficult to locate a vessel far out in the field without having been led to it while mapping.

(13) The patient may rest as often as necessary; but each time work is resumed one or two points of the map should be checked until the new plot coincides."

E.E.H.

(6) **Bothman, Louis and Cohen, Seymour, J. (Chicago).—Studies in intraocular pressure.** *Arch. of Ophthal.*, March, 1927.

(6) **Bothman** and **Cohen's** paper opens with a description of experiments with a manometer which show that variations in the intraocular pressure bear a close relationship to variations in the blood pressure. The cause of this relationship was investigated by observing the fundus of white rabbits through a binocular Gullstrand ophthalmoscope. When 1 c.c. of 1 in 10,000 adrenaline hydrochloride was injected into the ear vein of the animal, a definite constriction of the choroidal and retinal arteries and a marked dilatation of the veins could be seen. Later, the arteries also dilated. A similar phenomenon was seen with 2 mg. of nicotine, while 2 mg. of nitroglycerine produced a marked blanching of the choroidal and retinal vessels. With pilocarpine, blanching was observed, followed by immediate flushing of the choroidal and retinal vessels, but if atropine were injected first, no effect was produced. The authors therefore conclude that

changes in intraocular pressure occurring *pari passu* with changes of blood pressure are due to changes in volume of the intraocular blood-vessels, particularly of the venous system.

F. A. WILLIAMSON-NOBLE.

## BOOK NOTICES

**Annals of Eugenics.** Edited by KARL PEARSON and ETHEL M. ELDERTON. Vol. II, Parts I and 2. From the Francis Galton Laboratory for National Eugenics. Cambridge: University Press. April, 1927.

Among the very interesting articles in this number of the "Annals of Eugenics" is one by Professor Karl Pearson and Miss Margaret Moul on the problem of alien immigration into Great Britain, illustrated by an examination of Russian and Polish Jewish children (Part III). This section of the investigation deals with the statistics of ocular characters. There can be no question that this paper is the most important, not only on the statistics of visual acuity in a particular large social group, but also in many other cognate respects, that has been published of recent years. It is not easy reading, and few ophthalmologists are qualified to follow the mathematical procedures, much less to criticize them. They can, however, have complete confidence in Professor Pearson in this matter. The only criticism which an ophthalmologist is justified in making will deal solely with the criteria which are submitted to statistical computation. The authors have adopted a very elaborate gamut of degrees of visual acuity founded on Snellen's notation (which we regret to see reduced to decimal form). It may be doubted whether such extreme refinement is justified in the somewhat uncertain data of hundreds of cases derived from different sources and examined by different observers.

Among the conclusions arrived at are the following: (*a*) myopia increases with age; (*b*) mixed astigmatism tends to increase up to eleven years, and then to decrease and ultimately become steady in amount; (*c*) hypermetropic astigmatism probably remains fairly constant after 9.5 years and may tend slightly to increase from 14 to 15; (*d*) manifest hypermetropia tends to increase from 9.5 to 13 years, but may remain constant after this. "Our new data confirm the old, in the view that the school cannot be looked upon as the forcing house of myopia." This view will certainly awaken qualms in the minds of ophthalmologists, only slightly modified by the emphatically expressed warning that "when we

speak of 'increase of myopia' we mean the increase in the numbers recorded as myopic, the intensity of the myopia in the individual is not under consideration." As regards the latter point the deductions are that "the intensity of myopia increases with age, the intensity of hypermetropia decreases with age; the numbers of children who have manifest hypermetropia and myopia both increase, but the number of hypermetropic children is not only at every age greater than the number of myopic, but increases with age at a greater rate." Corneal refraction is found to vary little with age, and "there is small doubt that corneal astigmatism does not increase between the ages 8 to 15 years in the population considered."

Reference must be made to the original paper for the numerous inter-correlations of various ocular characters, which are admirably illustrated by graphs and diagrams. In this manner binocular vision and vision of best eye, visual acuity of right and left eye, visual acuity and general refraction, visual acuity and corneal refraction, visual acuity and general astigmatism, visual acuity and corneal astigmatism, general astigmatism and position of near point, accommodation and age, and several other pairs of factors are correlated. The paper ends with an important mathematical note on lenticular astigmatism.

**Myelogenetisch-Anatomische Untersuchungen über den zentralen Abschnitt der Sehleitung.** By Dr. PHIL and MED. RICHARD ARWED PFEIFER, Leipzig. Pp. 149, with 119 figures. Berlin: Julius Springer. 1925. Price 18 gold marks.

This volume of the series of monographs on neurology and psychiatry, edited by Professors O. Foerster of Breslau and K. Wilmanns of Heidelberg, cannot be neglected by any student of the intracerebral visual paths. It is an original investigation of the myelination of these paths, with special reference to those passing from the basal primary optic centres to the occipital lobes. It fittingly emanates from Professor Flechsig's Institute at Leipzig, and is in part founded upon his collection of myelogenic preparations. The monograph is the more valuable to ophthalmologists in that the original work is prefaced by a very complete account of the conflicting views of many distinguished neurologists, with copious quotations from their writings. Those who are familiar only with the relatively simple scheme advocated by Henschen—which looms largest in most English textbooks—will be interested to read critical descriptions of the opinions of von Monakow, Wehrle, Minkowski, von Stauffenberg, Flechsig, Nissl von Mayendorf, Adolph Meyer, Brower, Heine, Lenz, Wilbrand, and others. Such a perusal will doubtless have a disconcerting effect upon the self complacency induced by an accepted point of view; and it

must be admitted that it is no easy matter to follow the arguments and unravel the complications, some of which are due to variations in the nomenclature of various tracts. Those, however, who undertake the task will be rewarded, and will recognize that Dr. Pfeifer has made a distinct step in advancing our knowledge of the subject. The book is admirably printed and illustrated; and contains an excellent bibliography.

**Die Pathologie der Tränenorgane.** By Prof. W. STOCK, Tübingen. Part of Graefe-Saemisch Handbuch der gesamten Augenheilkunde. Pp. 170. Berlin: Julius Springer. 1925. Price 12 gold marks.

This monograph on the diseases of the lacrymal apparatus is an excellent résumé of the subject, well documented with bibliographies and admirably illustrated. The causes of abnormal increase and diminution of the secretion of tears, bloody tears, the action of tears on micro-organisms and the presence of antibodies in tears are first considered. The lacrymal glands, canaliculi, and sac are then successfully dealt with. The articles on dacryoadenitis in its various forms and dacryocystitis are particularly exhaustive.

**Die Bestimmung des Astigmatismus durch Schattenprobe mit Cylindergläsern.** By Prof. Dr. K. LINDNER. Pp. 111 with 83 figures. Berlin: S. Karger. 1927.

Lindner's book opens with a short history of the performance of retinoscopy with cylinders and then goes on to an ingenious explanation of retinoscopy as a whole. The basis of this is, that in myopia a real image of the surgeon's mirror is formed in the patient's vitreous, and in hypermetropia a virtual image is formed behind the patient's eye. The image and the mirror form conjugate foci; and it is therefore only the light reflected from the patient's fundus in such a direction that it will pass through the hole in the image, which can pass through the hole in the surgeon's mirror and be seen by him. The apparent movement of this light, on tilting the mirror in myopia and hypermetropia can be deduced from what happens when the image is in front of or behind the retina respectively. The next part of the book concerns the practical side of skiascopy and is profusely illustrated with pictures of the various types of shadow that may be seen. The author favours the use of a plane mirror, and advises that the skiascopic distance should be not less than one metre. He is also an advocate of mydriasis and cycloplegia, because if the patient is not looking straight at the mirror, errors are likely to occur owing to the peripheral aberration of the eye and the production of radial astigmatism.

With regard to the use of cylinders the author claims no originality for this procedure, but considers that without a know-

ledge of the underlying optical principles, it is difficult to interpret the skiascopical pictures produced. Once these principles are grasped, however, the procedure is quite simple. The results are more satisfactory than when spheres only are used, because the axis and amount of the correcting cylinder can be determined with greater accuracy.

This book is one of which we would welcome a translation, so that it might be available to a larger number of English readers. While one may not agree with all the statements made, the wealth of practical information contained within its one hundred and eleven pages cannot fail to be of value to ophthalmic surgeons.

**Retrobulbar Neuritis of Nasal Origin.** (**Über die rhinogene Neuritis retrobulbaris.**) By Prof. Dr. J. MELLER and Dr. OSKAR HIRSCH. Pp. 62 with 8 text illustrations and 2 coloured plates. Berlin: S. Karger. 1926. Price 4.50 marks.

This work is divided into two parts, an ophthalmological section by Meller, and a rhinological one by Hirsch. The authors do not claim that any great amount of original matter is presented; the book is more in the nature of a digest of recent work on the subject, and is confined to material written in the German language. Although most of the references are given in the text, the absence of a complete bibliography will certainly be felt by the reader. Both authors lay stress on the point that it is impossible to decide without operation the question of the condition of the posterior ethmoidal cells. They also are both in favour of the method of prolonged anaemia (*Daueranämasierung*), by adrenaline tampons applied to the nasal mucous membrane for two hours daily, before deciding on the necessity for an operation. Cases to illustrate the success of this method are cited, and the reader is referred to an article by v. Herrenschwand in Dimmer's "Festschrift" for a full description of the method. The illustrations and plates are excellent.

## CORRESPONDENCE

### PERSONAL EXPERIENCE OF CHRONIC DIPHTHEROID INFECTION OF EYELID

*To the Editor of* THE BRITISH JOURNAL OF OPHTHALMOLOGY

SIR,—From October, 1922 to January 28, 1924, I suffered from repeated attacks of inflammation in the left upper eyelid, pus being expressible from the margin: cultures taken on three occasions

demonstrated diphtheroid bacilli only, no staphylococci being grown. The lytic property of my tears was defective: the bactericidal power of my leucocytes was rather above the average as regards staphylococci: Wassermann, negative. It became difficult to carry on my professional work, and various treatments were tried. A brief catalogue follows to indicate my opinion of their respective values. Argyrol drops and Stannoxyl tablets. No apparent effect. Zinc sulphate, 2 per cent., irritating; ung. acid boric, *more* irritating; and ung. H.O.F., extremely irritating. Ag $NO_3$ 1 per cent. painting both lids had good effect three weeks, washing out lacrymal sac at same time with saline (normal). Autogenous vaccines were used for four months in varying doses, with no apparent effect. A lotion of hazeline and acid boric was soothing, but most comfort came from steaming over saucepan and hot swabbing of lid: the eye was kept bandaged when possible. Several teeth were extracted, condemned on X-ray evidence: pyorrhoea present. No marked effect. I noticed that very severe nervous strain seemed to precede exacerbations, and headaches were a feature. Refraction was done but no apparent influence on course of disease, hypermetropic astigmatism being present. I developed a carbuncle of buttock and finger and a boil close to anus: this sort of complaint I had not experienced previously: staphylococci present. I was advised to go to Switzerland, and did so June, 1923. I had three acute attacks in fifteen days whilst at altitude of 5,000 feet.

*On January* 28, 1924.—After reading Norman Walker's "Dermatology" on the subject of seborrhoea, I decided to wash my scalp with sphagnol soap, 15 per cent. daily, applied a lotion of salicylic acid, alcohol, and ol. ricini to the eyelid every night, and swallowed thyroid extract, grs. 2½, daily: this latter I omitted after a week or so.

*On May* 29, 1924, *i.e.*, four months later, I had my first attack after commencing the above treatment! It subsided *without pus formation* in less than two days; I made the note at the time "used lotion again," so that probably I had become irregular with the onset of better health.

*On June* 9, 1924.—After driving 110 miles in dull weather I had one day's exacerbation *with pus*.

*On September* 18, 1924.—I had one day's inflammation of left upper eyelid with pus formation: I had been having an anxious time with a case of septic pneumonia who died this day: I had been three nights on duty away from my own bed.

Since this date I have had no trouble with the eye whatever, except sticky tendency on awaking in morning. To sum up, I think it is reasonable to state that in spite of all manner of

treatments, local and general, and the advice of many skilled men (for which I am indeed most grateful, though unable to mention their names) fifteen months saw no improvement: and after embarking on the anti-seborrhoeic campaign the improvement was instantly noticed, four months passing before the first relapse of slight degree. I am glad to say that my personal experience has enabled me to treat several similar cases with success.

The prescription is as follows:

Acid Salicylic grs. xxx.
Sp. Rosmarini ʒi.
Ol. Ricini ʒii.
Sp. Vin. Rectif. ad ʒi.

Yours truly,

ARTHUR F. COLE.

WEST MALLING, KENT.
*June* 8, 1927.

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## CALCIUM DEFICIENCIES

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*To the Editor of* THE BRITISH JOURNAL OF OPHTHALMOLOGY

DEAR SIR,—May I correct a misprint in my paper on calcium deficiencies in your May number. At the top of page 229 the phrase "has always been ill" should read "has always seen ill." The mother's actual words were: "has seen badly since he could walk," showing that the case was probably a congenital myope, and therefore not an exception to the rule.

I have seen all the cases but one since their first blood examination, *viz.*, from six to twelve months after. All have become normal under treatment as regards their calcium level. In no case has myopia increased, but the time is too short to permit of forecasts. Several further cases have been found with low calcium levels, including one where it was only 6.2 mg. per 100 c.c.

Yours truly,

D. J. WOOD.

CAPE TOWN.
*May* 25, 1927.

# NOTES

**William Mackenzie Memorial**

As a memorial to William Mackenzie and with a view to the encouragement of original work in ophthalmology a "William Mackenzie Memorial Fund" has been established in Glasgow. A small committee will be elected annually, consisting of ophthalmic surgeons, representing the University of Glasgow, the Royal Faculty of Physicians and Surgeons of Glasgow, and others, which will have a wide discretion as to the manner in which the income of the Fund is to be expended. The "William Mackenzie Medal" will be awarded, from time to time, to the author of original work of outstanding merit in ophthalmology, and, so far as the income permits, grants may be given in aid of research or for other kindred purposes.

Contributions towards the Fund are being received by Dr. A. J. Ballantyne, 11, Sandyford Place, West Glasgow, C.3.

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**Honour**

H.M. The King of Norway has conferred the distinction of Commander 1st Class of the Royal Order of St. Olav upon Professor Dr. H. Schiötz and Dr. Med. S. Holth.

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**Section of Ophthalmology, Royal Society of Medicine**

THE following officers and Council for 1927-1928 have been elected: — *President*: Ernest Clarke, C.V.O. *Immediate Past President (ex officio)*: Sir Arnold Lawson, K.B.E. *Vice-Presidents*: Elmore W. Brewerton, A. H. H. Sinclair, T. H. Bickerton, T. Harrison Butler, R. Affleck Greeves, Malcolm L. Hepburn, A. C. Hudson, M. S. Mayou. *Hon. Secretaries*: J. F. Cunningham, O.B.E.; Humphrey Neame. *Other Members of Council: Physicians*: Sir E. Farquhar Buzzard, J. S. Collier, H. Moreland McCrea, O.B.E. *Metropolitan Members*: Montague L. Hine, H. Rowe Jeremy, Ida C. Mann, R. Foster Moore, Robert C. Davenport, R. R. James, F. A. Juler, Basil Lang, A. Hugh Thompson. *Provincial Members*: A. J. Ballantyne, R. J. Coulter, J. Wharton, William G. Laws, P. E. H. Adams, A. E. J. Lister. *Representative on Library Committee (Hon. Librarian of the Bowman Library)*: F. A. Williamson-Noble. *Representative on Editorial Committee*: A. H. Levy.